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# The Tech.

VOL. VI.

BOSTON, OCTOBER 21, 1886.

NO. 1.

## THE TECH.

Published on alternate Thursdays, during the school year, by the students of the Massachusetts Institute of Technology.

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WITH this number THE TECH enters the sixth year of its existence. By the diligent work of the preceding boards of editors, the standard of THE TECH has been brought to the front rank of the college press,

where it shall always be our endeavor to keep it. Unfortunately an adverse fate has so changed matters that only one member of the old board of editors remains on THE TECH; and so upon him and his friends devolves the responsibility of issuing the first numbers. Never before has THE TECH been so unfortunate, and consequently never before has it so felt the need of outside assistance. To all the classes, and more especially to '89 and '90, we say, there are vacancies which you must fill.

Our financial outlook is excellent, and there is every reason to believe that the high standard

of last year may be kept up, and perhaps even improved upon, if enough interest is taken in it by the students. Many men think that they have done all they should do when they subscribe, but such an idea is erroneous. A college paper is a thing in which every man of the college should take an especial pride and interest. He should endeavor to assist it in every way possible. He should remember that the editors are only his fellow-students, from whom he is not separated as he would be from a professional, but to whom he is bound by every tie of association and friendship.

A word here must be said about our cartoons and pictures. As our former artistic editor, Mr. Hoppin, who so well filled his position last year, is among the missing, we must depend entirely on the students for our drawings; and we trust that we shall not be disappointed. Surely, in so large a place as our Tech, there must be many who can sketch really well. So, all who can draw at all, we invite most cordially to try to do something for us and themselves. All drawings should be made in India ink on white, unruled paper or bristol-board. Care should be taken that the ink is ground perfectly black, as, unless it is, the work will be useless for engraving.

All contributions should be signed, as without the signature none can be accepted.

NOW that our foot-ball team has begun practice, we shall look forward to an interesting struggle for the pennant. Never in the history of the Institute has there been such an interest taken in any branch of athletics as that shown last year by the enthusiastic crowds that attended the championship games. The team fully merited such support, and we hope that this year neither the eleven nor number of spectators will be found to have deteriorated.

The collectors report encouragingly. The class of '87, which was the largest contributor last year financially, has, in spite of greatly diminished membership, beaten its previous record. There is no reason why the team should not be supported in every way by each class, as they are all represented on the eleven, and should be equally interested.

We suffer serious loss in the absence of so many of last year's players, but we hope that the new applicants will, by diligent training and practice, be able to fill their places. Every man who is possessed of the proper physical requirements should join in the afternoon practice, even if he has no idea of trying for the team, as the second eleven should be large and strong enough to be respectable opponents. The new men should take for examples the captain and members of last year's team, who seem to be energetic and faithful in their work.

THE TECH will always favor athletics that are carried on in the right spirit and in the right manner, and heartily wishes success to the eleven of 1886.

IT has always been a matter for favorable comment that there is a lack of rivalry and jealousy between the classes at the Institute. Now, it is by no means certain that such harmony is desirable or beneficial.

If we should have class foot-ball and base-ball teams, it might bring to the front new and hitherto undeveloped material, and would thus furnish a larger set of men from which to choose the regular Tech teams. As matters now stand, the only thing of the kind is the struggle for the tug-of-war championship of the Institute between the class teams. This has always been highly interesting.

The nearest approach to any sort of rivalry besides this, that we have seen, were the base-ball games of the Sophomore league, last spring. There were nines entered from several of the different courses of the Sophomore class, and a good number of games were played. Here, although the nines were all from one class, many

good men appeared, who, to an outsider, at least, appeared to play a great deal better game than several of the regular Tech nine. These men only appeared because of the rivalry between the various courses, and could not be induced to try for positions of the "varsity" nine. Now, if this rivalry between the courses could only have been extended to a class rivalry, probably these men would have become so much more interested and energetic, that they would not have been contented to show what they could do against nines from their own college, but would have desired to show what they could do against a nine from another college. Thus we see that a stronger class feeling would be most likely to raise the standard of our Tech teams.

Our Freshman class has always been kindly treated in the way of being allowed to carry canes and wear tall hats. Why not make them work for such honors? Let some kind of yearly struggle between the Sophomores and the Freshmen be instituted,—as, for instance, a foot-ball match. This is the custom at Brown, the winners of the game deciding the question of the privilege.

There is a tradition that in '72 a bold Freshman won the cane privilege for his class by thrashing a prominent Sophomore; but that can hardly hold now.

It is time that something of the kind should be started. Fellows should take pride in sustaining the honor of their class, and be willing to work to make and keep its reputation.

Competition brings to light latent powers, and keeps them active, and any cause which promotes it is generally justifiable.

IT is about time to inquire whether our corporation is going to do anything toward providing grounds for our various out-door athletics. It has always fallen on our various athletic organizations to provide suitable accommodations, and they have had to bear all the incurred expense. There is no other college that we know of that does not provide a campus, and there should be no reason why we should not be

furnished with what is so universally held to be a necessary attribute. Especially is this needed in our case, as most of us live in the city during the college year, and our pursuits are necessarily sedentary.

Something should be done at once, as this section of the city is rapidly being built up, and it will soon be impossible to secure a plot of sufficient size within any reasonable distance from either the Institute or our residences.

It is well known that the Institute has never favored athletics, but a new feeling is apparent among the students, at least, which influence cannot fail to have its effect. It is impossible for the Institute to sustain a place among high-grade American colleges without providing equal advantages.

#### A Hunting Experience.

WHILST camping out last summer I was much amused by some of the tall stories our guides got off. After supper we used to lie around our camp-fire and smoke, some of us whiling away the time by cleaning a gun or overhauling our fishing-tackle for the morrow's sport.

Our two guides, both old hunters, and bearing the respective names of Bill and Pete, seemed to have an inexhaustible supply of stories, with which they regaled us at this time. As each endeavored to excel the other in the marvelous and exciting character of his narration, and to that end drew largely upon his imagination, their adventures seemed to be at times almost miraculous. One story, I remember in particular, that Pete got off one night, we thought especially fine. Bill had just finished a story of a small-sized deer hunt he had been on some years before, and in the silence that ensued, we thought that for once Pete had met his master. But we were mistaken. After deliberately filling his short, black pipe with tobacco, and taking a few prefatory puffs, he began thus: "Wal, boys! that yarn that Bill was just tellin' puts me in mind of a little scrape I got into about twenty years ago, when I was livin' down near Bung-

town. You see it was gettin' along towards the middle of November, an' I wur putty busy killin' up my winter venison, and so fur I'd had first-rate luck. Wal, one mornin', arter there'd been a light fall of snow, I shouldered 'Old Betsy' an' started off, intendin', if possible, to get on a deer-track, and by followin' on't up, to get a crack at the varmint. Wal, arter awhile I cum across one that looked purty fresh, so I foller'd on mighty keerful, knowin' the feller warn't fur off; nor I warn't mistaken. Arter follerin' on about four hundred yards I cum to a deep sort o' gully; here the track turned to the left, along the edge of the bank. Wal, I foller'd on, keepin' my eye skinned, when purty soon, sure enough, I seen a piece of him stickin' out from behind an old hickory stump, alongside of which he was lyin' down. From whar I stood I couldn't git a fair sight at his *witels*. So cockin' my gun, I cracked a stick to attract his attention. He hear'n it, and up he jumps like lightnin', and begins snuffin' round to see what war in the wind. He smelt somethin' wrong and wur just makin' tracks, when 'Old Betsy' dropped him. He wur mortal wounded; but bein' a buck, an' a tarnal big one at that, I kept shy till I seen him give his last kick, as I calc'-lated, when haulin' out my old knife, I stepped up to cut his windpipe. I hadn't more'n got hold of his horn when he wur on his feet. The knife went flyin' about forty rods, and I wur nearly upset. I stuck on fur dear life, fur I knew that ef he could once shake me off, an' git the use of his horns, he would make short work with me. Wal, we fou't putty even fur about five minutes, when all of a sudden I felt that *we were agoin' off the bank*. I tried to cotch myself, but it were no go, and down we went, head over heels, through the snow. In that place it wur about fifty feet high, and putty steep. Wal, we got about half way down, when, *kerchunk*, we cum rite slap up agin a monstrous old sycamore log; but instead of this stoppin' us, the old log took a notion to *join the crowd*, and on we went, all three of us, rollin' and tumblin' to the bottom. When we got thar, it took me some time to find out just whar we wur.

But when I cum to, thar lay the deer, about ten feet off, stone dead, an' the old sycamore had fetched up agin an old stump just beyond, and I then noticed that the old log had a big hole in the end of it. Wal, while I sot thar, wonderin' what an all-hoppin' big piece of timber it wur, I tho't I hearn a smothered growl. I jumped onto my feet, and the next minit thar cum rite straight out of that log the biggest bar I ever see, and about the maddest one, too. He wur terrible confused with the ride he'd had, and kept whirlin' rite round in a circle fur about five minits, as though he felt sorter dizzy. This give me time to streak it, and git behind the nearest tree. Wal, purty soon the varmint got sight of the dead buck, and that cooled him off mighty quick ; he give a grin, and went up an' smelt of him, lickin' his chops as tho' he wur mighty pleased. All this time I wur standin' behind my tree watchin' him, and wishin' I had my gun or knife, so I might put some cold metal in the beast, fur I didn't fancy his makin' a meal of my buck. Wal, I turned round to see if I couldn't git to the top of the bank, whar my rifle lay, without the varmint seein' me, when my foot struck agin somethin' in the snow, and on lookin' down, *I'll be blowed if there warn't 'Old Betsey' lyin' rite at my feet.* I tell you, I wur *sum surprised* then, when I seen her, but it were plain enuf afterwards ; fur ye see, while I wur tusslin' with the old buck up above, the old shootin'-iron got knocked off the bank some way, and slid down till it stuck up agin that tree. Howsumever, I warn't slow in makin' good use of the old gal ; I loaded her up, and soon had a bit of lead comfortably stowed away under the old bar's hide. He fotched me thirty dollars clear cash ; an' I've allers considered that tumble, boys, the *luckiest* as well as the *tallest* one I ever had in my life."

#### The Lecture room of the K. Medical College.

AS I was sitting in my study, the other night, smoking and lazily watching the blue rings curl upward to the ceiling, the door

opened, and in walked my friend B., who is at present studying medicine at the K. Medical School. As soon as I saw him I noticed that he appeared rather blue ; so thinking to cheer him up by making fun of him, I said,—

"Hello, old man ! What on earth is the matter with you ? You look as if you had seen the ghost of your great-grandmother."

He did not, however, reply immediately, but going over to the table, helped himself to one of my choicest cigars, lit it, and sat down. After he had smoked for a little time in silence, while I sat gazing at him in mingled awe and amazement, he suddenly said,—

"Harry, do you believe in ghosts ?"

To this rather sudden query I cautiously replied that I had not yet seen one, and was unprepared to accept as truth any of the ghost stories I had heard.

"Well," said he, "ghosts, if such things be,—and I believe they are,—have their purposes to perform ; and when we can ascertain by an illustration, by an unraveling of circumstances and events attendant upon their appearance, when we see that their coming performs something worthy of their coming, we dare not question their existence, because they may be as worthy agents in the hands of Heaven as any other we might offer in substitute. I have in mind now an incident that happened to me the other night, that illustrates the point in question. If you would like to hear it, I'll tell it to you now."

"Yes," said I ; "go on ; I am very much interested. I am sure it must be worth hearing, since you seem to take it so much to heart."

"All right, then ; here goes," said he. "The other night Dr. S. came to me and said that he was going to dissect a body, that evening, in order that he might be ready to use it to illustrate his lecture of the next day. He wished me to come to the dissecting-room with him and assist him in his work. One of the other fellows was going to be there too. Having nothing particular to do then, I decided to go ; so we went along together.

"I must tell you before I go on any further, that a short time previous to this, as perhaps

you may have heard, a mob broke into the anatomical lecture-room, and it was with great difficulty that we escaped. The mob was caused by the chronic rumor among the ignorant, that their friends' bodies were undergoing the operations of the Professor's knife. In order to make escape easy in case of a second attack, the lectures had been removed to the top of the building, and the windows were hermetically sealed, so that no tell-tale light could attract the notice of the excitable people. There was also, at the end of the large room, a doorway cut, that opened upon a private stairway, by which, if the mob should break in by the ordinary entrance, we might retreat, and make our escape. No second attempt has yet been made, and consequently the door has never been used, and the bolt had become rusty in the ward. *This door was bolted from within the room.*

"We went immediately to the college, the doctor having given orders to the janitor to have a body ready for him on the table; so on arriving we at once went upstairs, having found the other fellow on hand at the door. We found the outer door of the room locked; but the doctor, having his own private key, unlocked it. This door led into a small vestibule where the cloak-rack was. Here we hung up our coats and procured candles, for the doctor liked to have plenty of light besides the gas, that he could move around the body. When we had lit our candles we stepped at once into the large and gloomy hall. Upon the table lay a human body—the body of a young woman. We went up to the table, and were about to make a more immediate examination of the subject. As the doctor was holding his candle over her face, standing with his back to the private door, the other fellow, who was also holding a candle in his hand opposite to him, suddenly exclaimed, 'Doctor, who is that yonder?' at the same time pointing toward the door. The doctor turned, expecting at the moment that some attack was to be made upon us, and prepared in one way or another to resist, when his eyes fell upon a figure that stood some ten feet off,—a figure perfectly motionless, with one of his

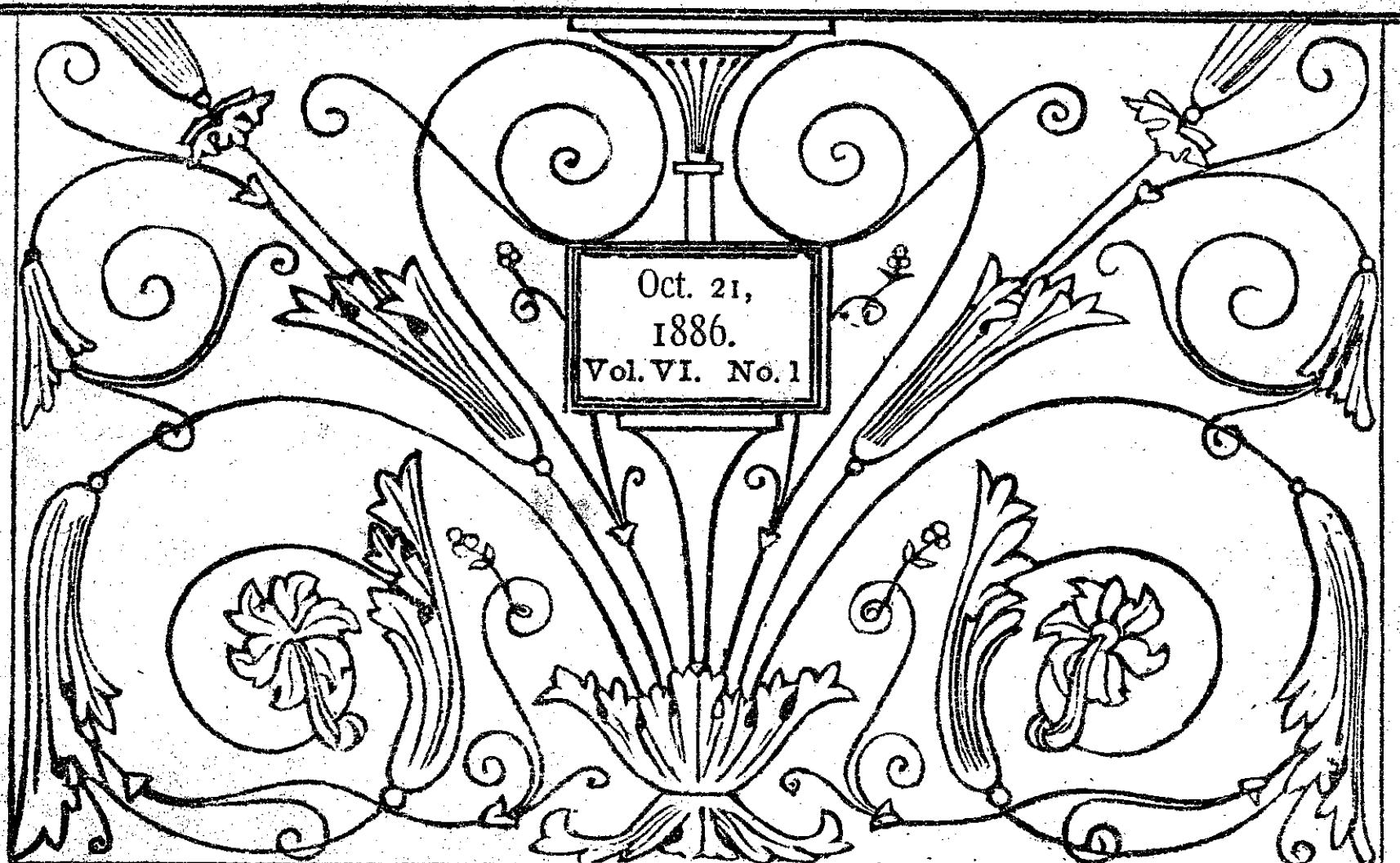
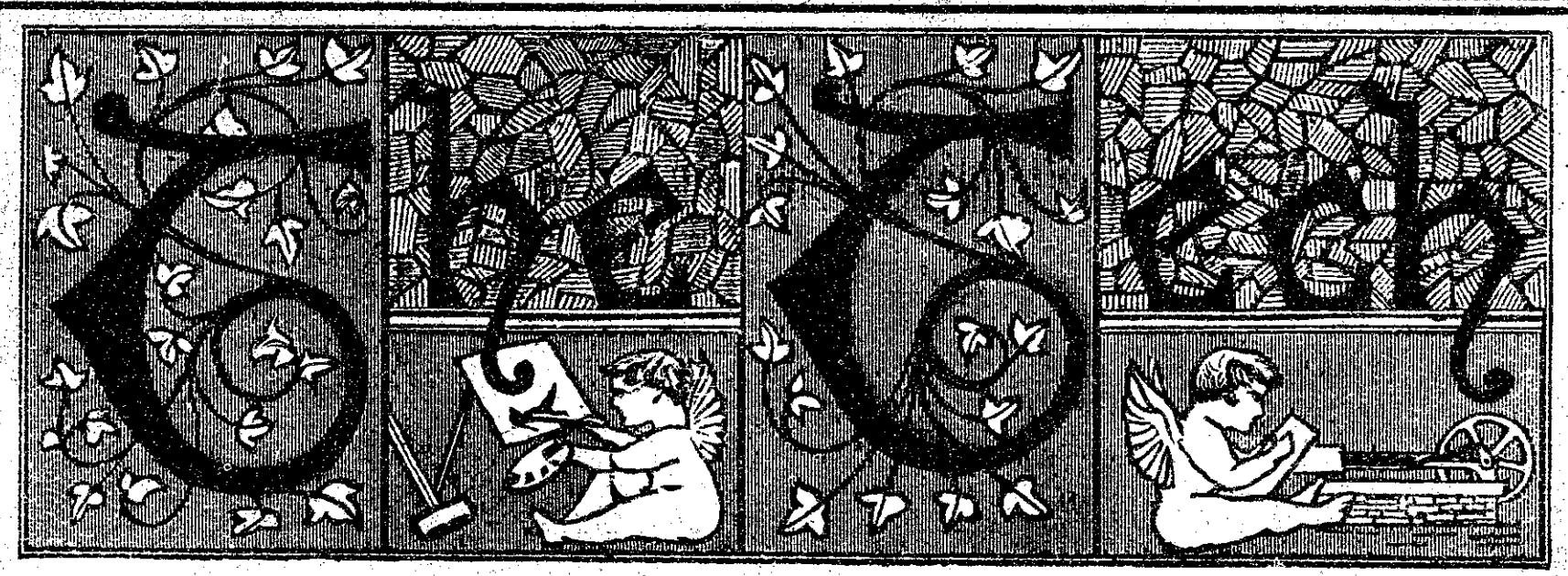
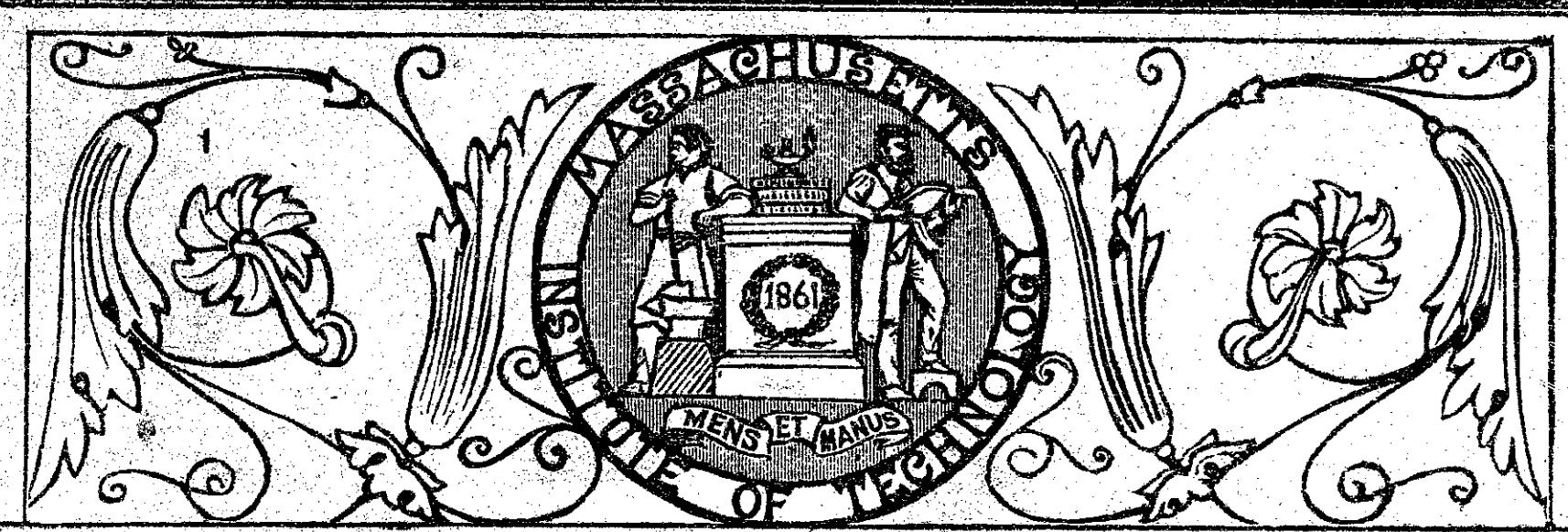
hands raised in the attitude of command, or, rather, in the attitude of one forbidding—ordering a thing not to be done.

"We all three immediately advanced, with candles raised in the air, upon this mute and gesturing figure. The figure receded as we approached—receded as quickly as we advanced upon it, but always with the hand uplifted, until we lost it at the door—*the door with the bolt rusted in the ward.* 'Great God, Doctor!' I cried, 'what was that?'

"'Let us see,' said the Doctor, coolly. 'Let us go down and see the janitor.' So down stairs we went, and saw that the outer door of escape was locked, and the janitor said that no one had passed in; no one could pass in without his knowledge. Then we three and the janitor returned to the lecture-room together. The body of the poor young woman lay untouched, cold and helpless, and, in our human eye, pitiful, and to be respected. Then the janitor asked the Doctor to describe the figure that had been in the room. 'He was tall,' said the Doctor, 'but nothing could be discovered save that he was wrapped in a gray cloak, and that he made no noise in moving; no sound came from him; all was still, and if it was a trick it was one well played.'

"My companion said that when he first saw him it was merely by accident, for he raised the candle to look around the room as a mere matter of curiosity, but in passing it over the misty void of the chamber, his eye fell upon the upright figure of a man. He said that the person nodded to him, and he could see his full face: the nod seemed to express satisfaction at being observed. He said that the figure, when he had attracted his observation, raised his arm, but as he did so, the hand for a moment pointed to the body on the table, and his eyes followed the gesture; then they were raised to him, and the expression was one of mingled anger and supplication.

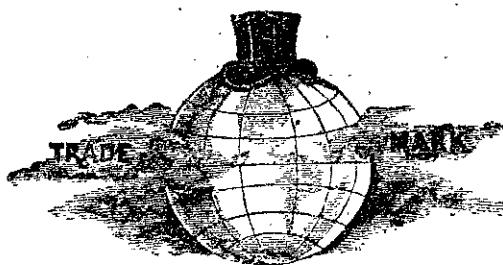
"'I know who it is,' said the janitor; 'I know well enough who it is. That man was dissected here a fortnight ago. He died of fever, and I brought him here, and this woman is his wife,



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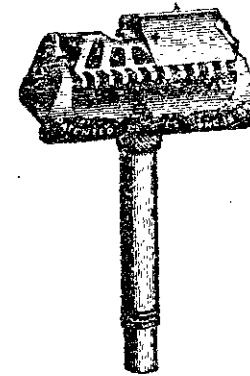
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# The Tech.

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NO. 1.

## THE TECH.

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WITH this number THE TECH enters the sixth year of its existence. By the diligent work of the preceding boards of editors, the standard of THE TECH has been brought to the front rank of the college press, where it shall always be our endeavor to keep it. Unfortunately an adverse fate has so changed matters that only one member of the old board of editors remains on THE TECH; and so upon him and his friends devolves the responsibility of issuing the first numbers. Never before has THE TECH been so unfortunate, and consequently never before has it so felt the need of outside assistance. To all the classes, and more especially to '89 and '90, we say, there are vacancies which you must fill.

Our financial outlook is excellent, and there is every reason to believe that the high standard

of last year may be kept up, and perhaps even improved upon, if enough interest is taken in it by the students. Many men think that they have done all they should do when they subscribe, but such an idea is erroneous. A college paper is a thing in which every man of the college should take an especial pride and interest. He should endeavor to assist it in every way possible. He should remember that the editors are only his fellow-students, from whom he is not separated as he would be from a professional, but to whom he is bound by every tie of association and friendship.

A word here must be said about our cartoons and pictures. As our former artistic editor, Mr. Hoppin, who so well filled his position last year, is among the missing, we must depend entirely on the students for our drawings; and we trust that we shall not be disappointed. Surely, in so large a place as our Tech, there must be many who can sketch really well. So, all who can draw at all, we invite most cordially to try to do something for us and themselves. All drawings should be made in India ink on white, unruled paper or bristol-board. Care should be taken that the ink is ground perfectly black, as, unless it is, the work will be useless for engraving.

All contributions should be signed, as without the signature none can be accepted.

NOW that our foot-ball team has begun practice, we shall look forward to an interesting struggle for the pennant. Never in the history of the Institute has there been such an interest taken in any branch of athletics as that shown last year by the enthusiastic crowds that attended the championship games. The team fully merited such support, and we hope that this year neither the eleven nor number of spectators will be found to have deteriorated.

The collectors report encouragingly. The class of '87, which was the largest contributor last year financially, has, in spite of greatly diminished membership, beaten its previous record. There is no reason why the team should not be supported in every way by each class, as they are all represented on the eleven, and should be equally interested.

We suffer serious loss in the absence of so many of last year's players, but we hope that the new applicants will, by diligent training and practice, be able to fill their places. Every man who is possessed of the proper physical requirements should join in the afternoon practice, even if he has no idea of trying for the team, as the second eleven should be large and strong enough to be respectable opponents. The new men should take for examples the captain and members of last year's team, who seem to be energetic and faithful in their work.

THE TECH will always favor athletics that are carried on in the right spirit and in the right manner, and heartily wishes success to the eleven of 1886.

IT has always been a matter for favorable comment that there is a lack of rivalry and jealousy between the classes at the Institute. Now, it is by no means certain that such harmony is desirable or beneficial.

If we should have class foot-ball and base-ball teams, it might bring to the front new and hitherto undeveloped material, and would thus furnish a larger set of men from which to choose the regular Tech teams. As matters now stand, the only thing of the kind is the struggle for the tug-of-war championship of the Institute between the class teams. This has always been highly interesting.

The nearest approach to any sort of rivalry besides this, that we have seen, were the base-ball games of the Sophomore league, last spring. There were nines entered from several of the different courses of the Sophomore class, and a good number of games were played. Here, although the nines were all from one class, many

good men appeared, who, to an outsider, at least, appeared to play a great deal better game than several of the regular Tech nine. These men only appeared because of the rivalry between the various courses, and could not be induced to try for positions of the "varsity" nine. Now, if this rivalry between the courses could only have been extended to a class rivalry, probably these men would have become so much more interested and energetic, that they would not have been contented to show what they could do against nines from their own college, but would have desired to show what they could do against a nine from another college. Thus we see that a stronger class feeling would be most likely to raise the standard of our Tech teams.

Our Freshman class has always been kindly treated in the way of being allowed to carry canes and wear tall hats. Why not make them work for such honors? Let some kind of yearly struggle between the Sophomores and the Freshmen be instituted,—as, for instance, a foot-ball match. This is the custom at Brown, the winners of the game deciding the question of the privilege.

There is a tradition that in '72 a bold Freshman won the cane privilege for his class by thrashing a prominent Sophomore; but that can hardly hold now.

It is time that something of the kind should be started. Fellows should take pride in sustaining the honor of their class, and be willing to work to make and keep its reputation.

Competition brings to light latent powers, and keeps them active, and any cause which promotes it is generally justifiable.

IT is about time to inquire whether our corporation is going to do anything toward providing grounds for our various out-door athletics. It has always fallen on our various athletic organizations to provide suitable accommodations, and they have had to bear all the incurred expense. There is no other college that we know of that does not provide a campus, and there should be no reason why we should not be

furnished with what is so universally held to be a necessary attribute. Especially is this needed in our case, as most of us live in the city during the college year, and our pursuits are necessarily sedentary.

Something should be done at once, as this section of the city is rapidly being built up, and it will soon be impossible to secure a plot of sufficient size within any reasonable distance from either the Institute or our residences.

It is well known that the Institute has never favored athletics, but a new feeling is apparent among the students, at least, which influence cannot fail to have its effect. It is impossible for the Institute to sustain a place among high-grade American colleges without providing equal advantages.

#### A Hunting Experience.

WHILST camping out last summer I was much amused by some of the tall stories our guides got off. After supper we used to lie around our camp-fire and smoke, some of us whiling away the time by cleaning a gun or overhauling our fishing-tackle for the morrow's sport.

Our two guides, both old hunters, and bearing the respective names of Bill and Pete, seemed to have an inexhaustible supply of stories, with which they regaled us at this time. As each endeavored to excel the other in the marvelous and exciting character of his narration, and to that end drew largely upon his imagination, their adventures seemed to be at times almost miraculous. One story, I remember in particular, that Pete got off one night, we thought especially fine. Bill had just finished a story of a small-sized deer hunt he had been on some years before, and in the silence that ensued, we thought that for once Pete had met his master. But we were mistaken. After deliberately filling his short, black pipe with tobacco, and taking a few prefatory puffs, he began thus: "Wal, boys! that yarn that Bill was just tellin' puts me in mind of a little scrape I got into about twenty years ago, when I was livin' down near Bung-

town. You see it was gettin' along towards the middle of November, an' I wur putty busy killin' up my winter venison, and so fur I'd had first-rate luck. Wal, one mornin', arter there'd been a light fall of snow, I shouldered 'Old Betsy' an' started off, intendin', if possible, to get on a deer-track, and by followin' on't up, to get a crack at the varmint. Wal, arter awhile I cum across one that looked purty fresh, so I foller'd on mighty keerful, knowin' the feller warn't fur off; nor I warn't mistaken. Arter follerin' on about four hundred yards I cum to a deep sort o' gully; here the track turned to the left, along the edge of the bank. Wal, I foller'd on, keepin' my eye skinned, when purty soon, sure enough, I seen a piece of him stickin' out from behind an old hickory stump, alongside of which he was lyin' down. From whar I stood I couldn't git a fair sight at his *wits*. So cockin' my gun, I cracked a stick to attract his attention. He hear'n it, and up he jumps like lightnin', and begins snuffin' round to see what war in the wind. He smelt somethin' wrong and wur just makin' tracks, when 'Old Betsy' dropped him. He wur mortal wounded; but bein' a buck, an' a ternal big one at that, I kept shy till I seen him give his last kick, as I calc'lated, when haulin' out my old knife, I stepped up to cut his windpipe. I hadn't more'n got hold of his horn when he wur on his feet. The knife went flyin' about forty rods, and I wur nearly upset. I stuck on fur dear life, fur I knew that ef he could once shake me off, an' git the use of his horns, he would make short work with me. Wal, we fou't putty even fur about five minutes, when all of a sudden I felt that *we were agoin' off the bank*. I tried to cotch myself, but it were no go, and down we went, head over heels, through the snow. In that place it wur about fifty feet high, and putty steep. Wal, we got about half way down, when, *kerchunk*, we cum rite slap up agin a monstrous old sycamore log; but instead of this stoppin' us, the old log took a notion to *join the crowd*, and on we went, all three of us, rollin' and tumblin' to the bottom. When we got thar, it took me some time to find out just whar we wur.

But when I cum to, thar lay the deer, about ten feet off, stone dead, an' the old sycamore had fetched up agin an old stump just beyond, and I then noticed that the old log had a big hole in the end of it. Wal, while I sot thar, wonderin' what an all-hoppin' big piece of timber it wur, I tho't I hearn a smothered growl. I jumped onto my feet, and the next minit thar cum rite straight out of that log the biggest bar I ever see, and about the maddest one, too. He wur terrible confused with the ride he'd had, and kept whirlin' rite round in a circle fur about five minits, as though he felt sorter dizzy. This give me time to streak it, and git behind the nearest tree. Wal, purty soon the varmint got sight of the dead buck, and that cooled him off mighty quick ; he give a grin, and went up an' smelt of him, lickin' his chops as tho' he wur mighty pleased. All this time I wur standin' behind my tree watchin' him, and wishin' I had my gun or knife, so I might put some cold metal in the beast, fur I didn't fancy his makin' a meal of my buck. Wal, I turned round to see if I couldn't git to the top of the bank, whar my rifle lay, without the varmint seein' me, when my foot struck agin somethin' in the snow, and on lookin' down, *I'll be blowed if there warn't 'Old Betsey' lyin' rite at my feet.* I tell you, I wur sum surprised then, when I seen her, but it were plain enuf afterwards ; fur ye see, while I wur tusslin' with the old buck up above, the old shootin'-iron got knocked off the bank some way, and slid down till it stuck up agin that tree. Howsumever, I warn't slow in makin' good use of the old gal ; I loaded her up, and soon had a bit of lead comfortably stowed away under the old bar's hide. He fotched me thirty dollars clear cash ; an' I've allers considered that tumble, boys, the *luckiest* as well as the *tallest* one I ever had in my life."

#### The Lecture-room of the K. Medical College.

**A**S I was sitting in my study, the other night, smoking and lazily watching the blue rings curl upward to the ceiling, the door

opened, and in walked my friend B., who is at present studying medicine at the K. Medical School. As soon as I saw him I noticed that he appeared rather blue ; so thinking to cheer him up by making fun of him, I said,—

"Hello, old man ! What on earth is the matter with you ? You look as if you had seen the ghost of your great-grandmother."

He did not, however, reply immediately, but going over to the table, helped himself to one of my choicest cigars, lit it, and sat down. After he had smoked for a little time in silence, while I sat gazing at him in mingled awe and amazement, he suddenly said,—

"Harry, do you believe in ghosts ?"

To this rather sudden query I cautiously replied that I had not yet seen one, and was unprepared to accept as truth any of the ghost stories I had heard.

"Well," said he, "ghosts, if such things be,—and I believe they are,—have their purposes to perform ; and when we can ascertain by an illustration, by an unraveling of circumstances and events attendant upon their appearance, when we see that their coming performs something worthy of their coming, we dare not question their existence, because they may be as worthy agents in the hands of Heaven as any other we might offer in substitute. I have in mind now an incident that happened to me the other night, that illustrates the point in question. If you would like to hear it, I'll tell it to you now."

"Yes," said I ; "go on ; I am very much interested. I am sure it must be worth hearing, since you seem to take it so much to heart."

"All right, then ; here goes," said he. "The other night Dr. S. came to me and said that he was going to dissect a body, that evening, in order that he might be ready to use it to illustrate his lecture of the next day. He wished me to come to the dissecting-room with him and assist him in his work. One of the other fellows was going to be there too. Having nothing particular to do then, I decided to go ; so we went along together.

"I must tell you before I go on any further, that a short time previous to this, as perhaps

you may have heard, a mob broke into the anatomical lecture-room, and it was with great difficulty that we escaped. The mob was caused by the chronic rumor among the ignorant, that their friends' bodies were undergoing the operations of the Professor's knife. In order to make escape easy in case of a second attack, the lectures had been removed to the top of the building, and the windows were hermetically sealed, so that no tell-tale light could attract the notice of the excitable people. There was also, at the end of the large room, a doorway cut, that opened upon a private stairway, by which, if the mob should break in by the ordinary entrance, we might retreat, and make our escape. No second attempt has yet been made, and consequently the door has never been used, and the bolt had become rusty in the ward. *This door was bolted from within the room.*

"We went immediately to the college, the doctor having given orders to the janitor to have a body ready for him on the table; so on arriving we at once went upstairs, having found the other fellow on hand at the door. We found the outer door of the room locked; but the doctor, having his own private key, unlocked it. This door led into a small vestibule where the cloak-rack was. Here we hung up our coats and procured candles, for the doctor liked to have plenty of light besides the gas, that he could move around the body. When we had lit our candles we stepped at once into the large and gloomy hall. Upon the table lay a human body—the body of a young woman. We went up to the table, and were about to make a more immediate examination of the subject. As the doctor was holding his candle over her face, standing with his back to the private door, the other fellow, who was also holding a candle in his hand opposite to him, suddenly exclaimed, 'Doctor, who is that yonder?' at the same time pointing toward the door. The doctor turned, expecting at the moment that some attack was to be made upon us, and prepared in one way or another to resist, when his eyes fell upon a figure that stood some ten feet off,—a figure perfectly motionless, with one of his

hands raised in the attitude of command, or, rather, in the attitude of one forbidding—ordering a thing not to be done.

"We all three immediately advanced, with candles raised in the air, upon this mute and gesturing figure. The figure receded as we approached—receded as quickly as we advanced upon it, but always with the hand uplifted, until we lost it at the door—*the door with the bolt rusted in the ward.* 'Great God, Doctor!' I cried, 'what was that?'

"'Let us see,' said the Doctor, coolly. 'Let us go down and see the janitor.' So down stairs we went, and saw that the outer door of escape was locked, and the janitor said that no one had passed in; no one could pass in without his knowledge. Then we three and the janitor returned to the lecture-room together. The body of the poor young woman lay untouched, cold and helpless, and, in our human eye, pitiful, and to be respected. Then the janitor asked the Doctor to describe the figure that had been in the room. 'He was tall,' said the Doctor, 'but nothing could be discovered save that he was wrapped in a gray cloak, and that he made no noise in moving; no sound came from him; all was still, and if it was a trick it was one well played.'

"My companion said that when he first saw him it was merely by accident, for he raised the candle to look around the room as a mere matter of curiosity, but in passing it over the misty void of the chamber, his eye fell upon the upright figure of a man. He said that the person nodded to him, and he could see his full face: the nod seemed to express satisfaction at being observed. He said that the figure, when he had attracted his observation, raised his arm, but as he did so, the hand for a moment pointed to the body on the table, and his eyes followed the gesture; then they were raised to him, and the expression was one of mingled anger and supplication.

"'I know who it is,' said the janitor; 'I know well enough who it is. That man was dissected here a fortnight ago. He died of fever, and I brought him here, and this woman is his wife,

I knew them both before they died, poor devils! They are both dead,' said the affrighted janitor, 'both of them.'

"Neither we two students nor the doctor had the heart to touch the body of the young woman after this, so we ordered the janitor to re-bury her, and bring us some other corpse the next night. There was no dissection that night."

When B had finished his story neither of us spoke for quite awhile. At last I said : "Allowing this to be true, which I cannot but acknowledge seems so, what does it prove?"

"I think it proves what I first said,—that ghosts do return sometimes to perform something worthy of their coming. That husband's ghost came there to prevent his wife's body from being cut up and thrown about—a thing for boys to look at, to jeer over, and make fun of. He obtained his object. He knew he had obtained it ere he left the hall, else he would have stood by our sides, and with his shrunken spirit-hand would have hurled the knife from their grasp, and saved the body of his poor helpmate, as he would have protected her when she was alive."

#### Prof. William Ripley Nichols.

SINCE the last issue of this paper, the Institute has met with a loss which it cannot yet fully appreciate.

It is with great diffidence that one of his former pupils writes of an instructor in regard to whose acquisitions and abilities so much might be said.

I will not go into the details of the life of Prof. Wm. Ripley Nichols, as I am sure that they are familiar to nearly all. We all know that he was one of the earliest graduates of the Massachusetts Institute of Technology, and that immediately upon graduation he became instructor, then assistant professor, and from the year 1872 until his death, professor in general chemistry in this institution.

Beyond the duties of his position, which he

performed faithfully not only in health, but often in great weakness and pain, he found time for much scientific research.

Indeed, it is wonderful to contemplate the labors of this unwearied intellect. His printed reports and treatises number more than forty; and his literary work, in connection with his special and favorite science, chemical analysis, was exhaustive.

Many of his articles were republished in the technical periodicals of Germany and France, as soon as they appeared. He was a standard authority on water analysis in this country, and his opinion was sought by most of our large cities in reference to water supply, his accuracy and probity being sufficient guarantee of the worth of his statements.

His heroic and patient persistence in the scrupulous fulfillment of the duties of his position during the last four or five years of ill health, has challenged the admiration of all who knew him.

Prof. Nichols' versatility was a trait to be remarked. While he was pre-eminently a scientist, he was also a linguist. He acquired so great a proficiency in some of the modern languages as to be able to give instruction in them, and to write and read technical articles and books with ease.

All subjects of scientific or literary research were interesting and congenial. He fell into no narrow rut, as is the danger with the specialist; his active intellect and broad sympathies preserved him from that misfortune.

Another point that strikes one in the contemplation of Prof. Nichols' character, is, that all he accomplished was done, not by the fitful flashes of erratic genius, but by thorough, persevering work. He loved labor, and found in it its own reward.

Perhaps to his unwearied application, and to his hours of study protracted long into the night, may be traced the origin of the disease which shattered the once stout frame.

In 1882, Prof. Nichols published a catalogue of the writings of the graduates of the Massachusetts Institute of Technology. The preface

closes with these words: "The work will be kept in such a shape that in case of accident to the present compiler, some one else can readily take it up and carry it on." The accident came, and the future compiler will have no more honored name to record than that of his predecessor.

This brief notice cannot fitly be closed without a word as to the relations between the student and our late instructor, and these are more easily remembered than expressed.

He was quick to notice and encourage the earnest seeker, yet patient with those of slower apprehension, modest, ever courteous, and possessed of the rare faculty of making the dryest subject attractive.

A former associate writes, "No man ever devoted his life to any object more completely than he did to the interest of the Institute." And at his death he bequeathed to it his valuable chemical library.

In the words of an old English writer of the seventeenth century upon the death of an eminent man, we may say, and we believe it will not seem far-fetched or extravagant:—

"Thus died he in the nine and thirtieth year of his age, having so much despatched the true business of life that the eldest rarely attain to that immense knowledge, and the youngest enter not into the world with more innocence: whosoever leads such a life needs be the less anxious upon how short a warning it be taken from him."

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WHEREAS, during the past summer, an inscrutable Providence has called to a higher seat one of our most esteemed professors, thereby depriving the Institute of an instructor in the prime of his years and usefulness, and our society of a valued honorary member, be it

*Resolved*: That we, the members of the K<sub>2</sub>S, representing the department of chemistry with which Prof. Wm. Ripley Nichols was all his life connected, do hereby express our heartfelt sorrow for the loss to our institution of a sci-

tist whose eminence added to its own reputation, of a graduate whose devotion to his *Alma Mater* never wavered, and of a friend whose genial companionship made the paths of learning more pleasant to all who journeyed with him. And, further, be it

*Resolved*: That crape be worn with our society pin until the Thanksgiving recess, and that these resolutions be published in THE TECH.

For the Society,

JAS. T. GREELEY,  
BENJ. C. LANE,  
*Committee.*

Young's Hotel, Oct. 15, 1886.

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#### Professor William Cook.

BY the painful casualty at Chatham, Mass., last summer, the Institute has lost the services of one of its best and most able instructors. The news of the sudden death of Professor William Cook has caused deep regret to his past pupils, who were much attached to him by his manly and genial qualities, his noble character, and the kind interest he showed in all who were with him.

If we should mention one predominant feature of his character, it would certainly be his inviolable good-nature and happy disposition: would there were more such amongst us. Students are not, as a rule, flattering in their criticisms of their instructors, but their opinions usually have reasonable foundation.

As a teacher, Professor Cook was original, inspiring, and enthusiastic, not sparing himself in the faithful discharge of his duties. Many teachers are rather severe in their deportment, and of unbending dignity, often failing thus to secure that respect which their abilities should command.

It is not too much, we think, to say that those who were associated with Professor Cook last year as students, will long remember with pleasure the hours spent with him, and will always regret his untimely end.

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**Abram Hunt Badger.**

WHEREAS, the Almighty, in his supreme power and wisdom, has taken from us our true friend and brother, Abram Hunt Badger, the Delta Chapter of the Theta Xi Fraternity, in remembrance of his noble character and earnest services, wish to give expression to their appreciation of the great loss which they bear; therefore, be it

*Resolved:* That by his death the Fraternity loses one of its most valuable members — one whose genial manners and sterling qualities won the affection and esteem of all who knew him. His short life among us was of a character to endear him to us all, and the recollection of his bright face will always revive the most pleasant memories. And be it

*Resolved:* That we deeply feel for his bereaved family, and tender our heartfelt sympathy to them in their affliction.

MORTON E. COBB,  
ANTHIME W. LA ROSE,  
GEORGE O. DRAPER,  
*For the Chapter.*

WHEREAS, it has pleased Almighty God, in his infinite wisdom, to take from us our well-beloved and much-esteemed friend and classmate, Abram Hunt Badger, be it

*Resolved:* That the class of '89, Massachusetts Institute of Technology, loses in him a faithful and much-loved member; one who was ever faithful in his work, and kindly considerate of the interests and welfare of his fellow-classmates. And be it.

*Resolved:* That the class of '89 extend to his family their heartfelt sympathy in this their sad bereavement.

A. W. LA ROSE,  
A. F. BARDWELL,  
*Committee.*

**List of Publications, M. I. T.**

MASS. INSTITUTE OF TECHNOLOGY.—Abstract of the Proceedings of the Society of Arts, 1885-86, 8vo., pp. 155. Boston, 1886.

CABOT, J. W. ('79). The Influence of Temperature in Steel-making on the Behavior of the Ingots in Rolling. *Trans. Am. Inst. Min. Eng.*, XIV., 84.

CAMPBELL, H. H. ('79). The Homogeneity of Open Hearth Steel. *Trans. Am. Inst. Min. Eng.*, XIV., 358.

CROSS, C. R. ('70). Notes on Equal Temperament and the Character of Musical Keys. *Proc. Amer. Acad.*, XXI., 499.

DROWN, T. M. (Prof.) The Latest Development of the Bessemer Process or the Blowing of Small Charges. *Proc. Soc. Arts., M. I. T.*, 1885-86, 141.

HOLMAN, S. W. ('76). On the Effect of Temperature on the Viscosity of Gases. Pph., 8vo., pp. 44. Cambridge, 1885.

—On the Effect of Temperature on the Viscosity of Air. *Proc. Amer. Acad.*, XXI., 1.

HOWE, H. M. ('71). Remarks on the Clapp-Griffith Process. *Trans. Am. Inst. Min. Eng.*, XIV., 929, 934.

—The Hunt and Douglass Copper Process. *Eng. and Min. Jour.*, December, 1885, 414.

—The Attainment of Uniformity in the Bessemer Process. *Trans. Am. Inst. Min. Eng.*, May, 1886.

HUNT, A. E. ('76). Soft Steel for Boiler Plates. *Trans. Am. Inst. Min. Eng.*, XIV., 826.

—Remarks on Methods for Estimation of Manganese and Phosphorous in Iron and Steel. *Trans. Am. Inst. Min. Eng.*, XIV., 379.

JACQUES, W. W. ('76). Recent Progress in Under-Ground Wires. *Proc. of Soc. of Arts, M. I. T.*, 1885-86, 20.

JAMESON, C. D. (Inst.) Notes on the Panama Canal. *Jour. Assoc. Eng. Soc.*, August, 1886.

LANZA GAETANO (Prof.) Transmission of Power by Belting. *Proc. Soc. Arts. M. I. T.*, 1885-86, 59.

—Transmission of Power by Belting. *Proc. of N. E. Cotton Manufacturers' Asso.*, Twenty-first Meeting, 1886.

NEWELL, F. H. ('85). Late Methods of Drilling for Oil and Natural Gas. *Proc. Soc. of Arts, M. I. T.*, 1885-86, 53.

NICHOLS, W. R. ('69). The Micro-Membrane Filter. *Proc. Soc. Arts, M. I. T.*, 1885-86, 131.

RYDER, J. P. ('84), with Arthur Michael. Zur Kenntniss der Einwirkung von Aldehyden auf Phenole. *Berichte d. deut. Chem. Gesellschaft*, 1886, 1388.

SEDWICK, W. T. (Prof.), with E. B. WILSON (Inst., 1885). General Biology, 8vo., p. 193. New York, 1886.

—Relative Poisonous Properties of Coal and Water Gas. *Proc. of Soc. of Arts, M. I. T.*, 1885-86, 13.

SMITH, CHAS. A. ('68). Steam Using or Steam Engine Practice, 8vo. Chicago, 1885.

—Steam Making or Boiler Practice, 8vo., p. 195. Chicago, 1885.

TYLER, H. W. ('84). Entertainments in Chemistry, 16mo, p. 79. Boston, 1886.

WHITE, A. C. ('82). Comparison of Alcohol Thermometers Baudin 8208 and 8209, with the Air Thermometer at Low Temperatures. *Proc. Amer. Acad.*, XXI., 45.

WOODBRIDGE, S. H. (Inst.) Application of Solar Heat for the Warming of Buildings. *Proc. Soc. of Arts, M. I. T.*, 1885-86, 33.

WOODBURY, C. J. H. (Stud. 1869-73). Remarks on Natural Gas. *Proc. Soc. Arts, M. I. T.*, 1885-86, 58.

### Foot-ball.

A MEETING of the Foot-ball Association of the Institute was held September 28th, and officers were elected to fill vacancies. The organization is as follows: president, Geo. Dempsey, '88; vice-president, Giles Taintor, '87; secretary and treasurer, Quintard Peters, '87; manager, W. L. Dearborn, '88; executive committee, Herrick, '88, H. D. Sears, '87, Dearborn, '88, Durfee, '89, Stearns, '90. E. W. Herrick, '88, was elected captain, and C. B. Vorce, '88, sub-captain.

About thirty men are practicing every afternoon, and from these a team can be picked that

will do credit to the Institute. The men will go to the training-table as soon as possible. The management has leased the Union Grounds until the last of November, so there will be no trouble about a place for practice.

### Inter-Collegiate Foot-ball Association.

A MEETING of the Association was held at Springfield, September 24th, with delegates present from Williams, Amherst, and Tufts colleges. The Institute of Technology was not represented, as the delegates were unable to attend, and failed to appoint substitutes. Efforts were made by the convention, without avail, to find some one to represent the Institute.

The following officers were elected: president, A. J. Wells, of Williams; vice-president, A. E. Snow, of Tufts; secretary, W. J. Nourse, of Amherst; treasurer, Maurice Cooley, of the Institute of Technology; standing committee, Mr. Leonard of Williams, Mr. Galletly of Tufts, and Mr. Haskell of Amherst.

Dartmouth applied for admission through delegates, but was refused on account of Williams and Tufts being short of cuts. It was voted to purchase a pennant for Williams. The standing committee reported a schedule as follows:—

October 20, Tufts vs. Williams, at College Hill.  
 October 23, Amherst vs. Techs, at Amherst.  
 October 27, Techs vs. Tufts, at Boston.  
 October 30, Amherst vs. Williams, at Amherst.  
 November 3, Techs vs. Williams, at Boston.  
 November 3, Tufts vs. Amherst, at College Hill.  
 November 4, Techs vs. Amherst, at Boston.  
 November 6, Williams vs. Tufts, at Williamstown.  
 November 9, Amherst vs. Tufts, at Amherst.  
 November 17, Williams vs. Techs, at Williamstown.  
 November 20, Tufts vs. Techs, at College Hill.  
 November 20, Williams vs. Amherst, at Williamstown.

It was voted to adopt Wright & Ditson's new "grasshopper" ball. The following changes were made in the revised playing rules of W. C. Camp:—

Rule 4, line 3, "is held or down," changed to "is carried across."

Section II., Rule 17, last sentence omitted.

The convention adjourned to meet again at the Warwick House, Springfield, Mass., November 23d, at 7 p. m. The delegates were all harmonious and enthusiastic, and all regretted that the Institute of Technology was not represented. An interesting and prosperous season is expected.

#### Harvard vs. Tech.

THE practice game with Harvard, October 9th, was of too monotonous a character to be given in detail. In the first half, the ball was on our end of the field about all the time. For Harvard, Harding, Holden, and Faulkner did most of the work. On our side nothing brilliant was done except a good run by Herrick. Our rushers did not work enough. Score at end of first half: Harvard, 24; Tech, 0.

In the second half our men played better, and kept their wind well. Duane and Durfee changed places. The kicking of Wadsworth and Duane was very fine. Vorce and Goodhue did most of the tackling on our side. For Harvard, Harding, Fletcher, and Faulkner made the most brilliant plays. In this half Holden was disabled, Morse taking his place, and Durfee was substituted by Devens. The score was increased to 54 to 0. Score in detail, 11 touch-downs, 4 goals, 1 safety.

Our great fault lay in the inability of our rushers to either hold the Harvards, or break through on their half-backs. Neither did they follow up the ball in good shape.

#### Andover vs. Tech.

GAME called at 3.25. Our men had to play up-hill, and the ball was forced toward our goal, where we were compelled to make a safety. Then Andover kicked a goal from the field. Then the ball went to Andover's goal, where Vorce made a touch-down. No goal. Then Bancroft, Andover, kicked another goal from the field. Fine passing by Herrick, Tracy, and Ladd brought the ball up the hill; but soon after, by an error in judgment of Devens, Andover got a touch-down, from which a goal was kicked.

Second half: The ball was kept in Andover's territory all the time. Bancroft muffed a fair catch; Dame got the ball, passed to Herrick, who made a touch-down, which was allowed by the referee. The decision was changed, as it was claimed by Andover that Bancroft was prevented from making a fair catch. Next, Shaw of Andover was promptly disqualified for knocking down Wadsworth, who was heeled for a fair catch. The ball was then carried toward their goal, where the Techs could not rush it through. Then Dennisson, Andover, and Goodhue, Tech, made some beautiful runs. Devens then made a wonderful long punt, a short distance from our goal, which brought the ball to Andover's. Then Goodhue, Tracy, and Duane each made touch-downs. Then Herrick made another touch-down, which was not allowed, as the referee did not understand the rules. No more scores were made. Andover, 18; Tech, 16. The referee was Knowlton of Andover, who no doubt tried to be fair, but his mistaken decisions gave Andover the game.

For Andover, Dennisson, Brainerd, and Mory did the best work. For the Tech, the whole rush-line did well, especially Goodhue, Tracy, and Dame, the new men.

#### Yale vs. Tech.

THIS game was played before a large audience, and although one-sided, was not without interest. In the first inning Yale made her first touch-down in two minutes, and made altogether in the first half nine more, from seven of which goals were kicked. The Techs also made one safety. Score, 50-0. In the second inning the playing of the Yale rush-line was phenomenal, our half-backs having no chance to kick the ball. Seven touch-downs were made, a majority by Beecher, and Watkinson kicked a goal from each. The Techs made two safeties. Total score was 96-0. The Yale rush-line did perfect work, and no weak spots are discoverable in the eleven. For our team, Devens did some brilliant tackling, and was highly praised by the Yale men. Our rush-line did fairly good work.

## A Brown Story.

THE following story comes from Brown, but the writer will not vouch for the truth of it. One night a party of Brown men were perambulating the streets, when they perceived a sign which one of them thought he would like. The sign was expeditiously detached, and none too soon, for the real proprietor of the sign appeared on the scene, and gave chase. Being hard pressed, the fellows ran into one of their dormitories, slamming the door behind them. Some time was lost in arousing the janitor, and when the door was finally opened everything was still. Matters were then explained to the janitor, and the pair started on a search through the building. There is a rule at Brown that all the students rooms may be entered by the janitor at any time, with the single exception, that if there is a prayer-meeting going on, he must not disturb it by entering. After going through several rooms and finding nothing suspicious, the pair came to a door on which was hung a placard inscribed, "Prayer Meeting." This aroused their suspicion, and they determined to wait and find out what was going on in the room. When they had arrived at this decision they heard some one begin to pray, and the following words of the prayer were clearly heard by them: "O Lord, a wicked and adulterous generation are seeking after a sign. But they shall seek in vain, for a sign shall not be given unto them." Mingled with these words was a noise as of some one splitting wood. After a short time the door was opened, and they were admitted. A number of fellows were in the room, who seemed in high glee over something. Nothing was seen of the sign, however, unless, perhaps, they might have imagined that it formed part of a bright wood fire that burned in the grate. As they could not be sure of this, they had to retire discomfited. The sign was not found in any of the other rooms.

"Signs of the Times."—Sections VI. and VII. will meet in Kidder Lecture Hall, for examination, at 11 A. M.

## Technics.

*Pol. Econ. Lecture.* *Lecturer:* "Now, what is wealth? Is a singer's voice wealth?"

*Sophomore* (*as yet without text-book*): "Yes, sir."

*Lecturer (sternly):* "Why?"

*Soph.* (*gleefully*): "Because it issues notes."

Overheard in the hall of Rogers. *First Freshman:* "When will we have our first class-meeting?"

*Second Freshman:* "Oh! I don't know. I suppose Pres. Walker will call one soon, though."

The other day, while riding out home in the cars, one of the Techs entered into a conversation with the brakeman about the various kinds of brakes. This worthy, during the conversation, gave away the following bit of information: "Well, there's the Westinghouse brake, that a man named Westinghouse invented; and then there's the vacuum brake—a German named Vacuum invented that."

*German recitation.* *Professor:* "Mr. X., translate "Die Nachtigal hat ihre Farbe verloren."

*Mr. X., unhesitatingly:* "The nightingale has lost her beard."

*Voice from the rear part of room:* "And the wind blew through—" But the rest was lost in the applause that followed.

As this is about the time for the regulation joke on the poor freshman in the laboratory, we have prepared the following, and feel sure it will meet all requirements:—

*Fresh (to instructor):* "Will you please tell me what the 'hood' is?"

*Instructor (pointing):* "That's the hood, there."

*Fresh (inquiringly):* "Shall I take it to my desk?"

*Prof.:* "These books are twenty-five cents each,—just sufficient to pay for the expense of printing."

*Fresh:* "Is this for the printing only, or for the compilation also?"

*Prof.:* "Just for the printing."

*Fresh:* "Well, I've got a brother in the business, who will print all you want for three cents a copy."



Mr. Dippold is the new instructor in German.

An '87 theater party attended the performance of Adonis on the 11th.

Mr. Robbins, '86, is an assistant in the civil engineering department.

Classes have been formed in Italian, Spanish, and Advanced German.

Political economy is now a regular study of the Sophomore year.

At the annual meeting of the class of '87, Mr. Spaulding was elected class historian.

The Alpha Tau Omega batting cup was won by Clement, '88, catcher of the nine.

Mr. C. W. Smith, first base and change pitcher of the Harvard nine, has entered in '88.

The Lowell course of free lectures will begin during the first week of November.

The Senior civils made an excursion to the Hoosac Tunnel on October 16th.

The Hammer and Tongs Club dined at Young's on October 16th. Several new members were initiated.

The Junior Mechanicals are making drawings of pieces of machinery in the Charlestown Navy Yard.

Mr. Bemis, formerly quarter-back on the Harvard foot-ball team, has entered the Institute.

The members of the Biological course recently visited the breweries around Boston, with Prof. Sedgwick.

'90 proposes to form a Freshman Eleven. They had much better give all their support to the University Eleven.

The new electric clock in Roger's corridor is a great convenience. But why should the old clock be allowed to stop?

Of last year's foot-ball team, Captain Cooley, Sturges, Bowles, Shortall, Fletcher, and Holden have not returned to the Institute.

The tennis courts are in good condition, and playing upon them has been resumed. There is some talk of a fall tournament being held.

Mr. G. O. Draper, '87, and Messrs. Mauran, Borden, and Durfee, '89, have recently been undergoing their initiation into the Hammer and Tongs.

The fourth-year architects are working upon a problem of an amphitheater for natural history lectures. The problem for the third-year men is a frontispiece in the Grecian-Doric order.

The Tennis Association held a special meeting October 4th. T. W. Sprague, '87, was elected President, and Nathan Durfee, '89, was elected Treasurer, to fill vacancies.

At the first meeting of the K<sub>2</sub>S, Mr. Lane and Mr. Greeley were appointed to draw up resolutions regretting the death of Professor William Ripley Nichols.

We would again call attention to the fact that the editors of *Technique* have offered a prize of five dollars for the best design for a cover. All designs should be handed in by November 10th.

Our "Bijou Nine," as it was called last year, has a clean record, having lost every game it played. The last was with Brown, the score being 5 to 3.

Prof. Nichols' place in the lecture-room is at present filled by Prof. Pope. Mr. Bardwell is in charge of the Freshman laboratory, Mr. Frost being away in Germany, studying chemistry.

The Co-operative Society held a meeting October 9th. Vacancies were filled by the election of J. P. B. Fiske, '89, Secretary, and Ellison C. Means, '88, Treasurer.

Guy Kirkham, '87, former editor of THE TECH has entered an architect's office in St. Paul, Wis. F. M. Wakefield, '87, also formerly a TECH editor, is working in Richardson's office in Brookline.

Every one will be glad to hear that Solomon Sturges, '87, former editor of the TECH, is making a success in business. He has opened an office in Chicago for buying and selling exchange.

'87 and '88 are subscribing well for the support of the foot-ball team. '89 and '90 are not subscribing in the way that such large classes should, especially '89, which is no longer the Freshman class.

Mr. Maurice Cooley, '87, the captain of last year's eleven, has left the Institute, and is with the chief engineer of the T., St. L. & K. C. Railroad, at Toledo, O. Mr. Cooley will be a great loss to the eleven.

Lectures in Sophomore physics still come at the old inconvenient hour, when every one is tired out, and cannot possibly pay the attention that so important a lecture deserves. Will there never be a change?

Mr. F. L. V. Hoppin, '88, was in town last week. Mr. Hoppin is in the office of McKim, Mead & White, in New York. Although away from the Institute, he will retain his connection with *Technique*.

At a special meeting of '89, on September 30th, Mr. Hobbs was re-elected as Director of THE TECH. A committee of two was appointed by the class to draw up resolutions concerning the recent death of Mr. Badger.

The Boston newspapers represented at the Institute are as follows: *Herald*, by T. W. Sprague, '87; *Globe*, by E. G. Thomas, '87; *Advertiser*, by H. C. Spaulding, '87; and *Journal*, by F. W. Hobbs, '89.

At a recent meeting of the Hammer and Tongs Club, the following officers were elected: Pres., W. C. Fish, '87; Vice-Pres., J. A. Cameron, '87; Sec., H. C. Spaulding, '87; Treas., H. D. Sears, '88. The Club dined at Young's, October 16th.

At the annual meeting of the class of '88, October 2d, Mr. G. C. Dempsey and Mr. W. L. Dearborn were elected Directors of THE TECH, and all of last year's class officers were re-elected. The office of Assistant Secretary was abolished.

There are a number of '86 men back at the Institute in various positions. F. L. Locke is assistant in Descriptive Geometry, H. E. H. Clifford is instructor in Mechanics and Acoustics, and Dana P. Bartlett, instructor in Freshman Mathematics.

It is reported that a member of the Freshman class, after much urging, put his name down on the foot-ball subscription paper for the sum of ten cents. After a day's reflection he hunted up the collector, and told him that he should be obliged to have his name crossed off, as he was not able to pay up.

The annual meeting of the Cycling Club was held October 1st. The election of officers resulted as follows: Pres., E. O. Goss, '87; Vice-Pres., M. Rollins, '89; Sec. and Treas., Mr. Basford, '89; Captain, Mr. Hutchins, '89; First and Second Lieutenants, Messrs. Merrill, '89, and Mildram, '89. The Club will hold runs every pleasant Saturday afternoon.

The Athletic Club met October 9th, and elected the following officers: President, T. D. Brainerd, '87; Vice-President, W. C. Fish, '87; Secretary, G. C. Dempsey, '88; and Treasurer, G. O. Draper, '87. The Senior Class then elected H. D. Sears for member of Executive Committee for '87, and '88 elected Russell Robb as their representative. It was voted not to have a fall out-door meeting.

A party of eleven Techs drove, in Mr. Cobb's four-in-hand, to Wellesley, Saturday afternoon, taking in Lasell Seminary on the way. They were much gratified at the interest shown by the young ladies, especially at the latter place. Mr. La Rose carried off the honors by his choice selections on the coach-horn, while Mr. Cobb's skillful manipulation of the ribbons was greatly admired.

Approximate classification of students in the School of Industrial Science (Oct. 12, 1886) as compared with that of 1885-86 (compiled about Nov. 15, 1885):—

	REGULARS.		SPECIALS.		TOTAL.	
	1886-87	1885-86	1886-87	1885-86	1886-87	1885-86
Fourth year . . .	54	53	21	24	75	77
Third year . . .	84	63	45	52	129	115
Second year . . .	102	112	67	81	169	193
First year . . .	200	187	51	37	251	224
	—	—	—	—	—	—
	440	415	184	194	624	609

The Class of '89 had a hard time at their last meeting. By diligent work and by sending out scouts to bring in those who were playing tennis, the quorum of forty was procured. The number for a quorum was then reduced to twenty-five, and fifteen men were allowed to go out. The remainder then settled down to business, but unfortunately accomplished nothing, none of the candidates obtaining a majority sufficiently large to elect them. Finally the meeting was adjourned in despair.

The Society of '87 held its first meeting of the year at Parker's, on October 8th. After the annual election of officers, the members of the Society of '88, who also held their meeting at Parker's that evening, were invited to join in the festivities of the evening. The feeling of fellowship between the two Societies was strengthened by the social commingling. An impromptu programme was rendered, which included humorous recitations by Mr. Spaulding, '87; songs by Messrs. Sprague and Thompson, '87; scenes from the Mikado by Messrs. Spaulding, Thompson, and Patterson, '87; and a Japanese song by Mr. Fukuzawa, '88.

The '87 miners have not yet begun on their thesis work in the mining laboratory, but are doing preliminary work, as follows: Fire assay of nickel, cobalt, copper, iron, and antimony; extraction of gold from Hale concentrates; Ball mill amalgamation; concentration of lead ores by "Spitzlutte;" chlorination test. They have also been assigned essays to write, of which one is to be read every Saturday morning, the last essay to be in before Thanksgiving. The titles of the essays are as follows: "Deposits at

Capelton, P. Q.," Whitney; "Placers of California," Brace; "Hydraulic Mining in the West," Carney; "Iron in the Alleghenies," Souther; "Lake Superior Copper," Mossman; "Mining in Mexico," Norris; "Silver Mines of Peru and Bolivia," Wilcox; "Iron of Lake Superior," Nickels; "Pumping and Ventilation on Comstock Lode," Sprague; "Cost of Sinking Shafts, etc., in the Black Hills and California," Gardner. Modern history, with Professor Atkinson, has been added to the fourth-year course in mining.

The Class of '90 held its first meeting on Monday, October 11th, in Rogers, 15. Great preparations were made, as a rush was expected with '89, and each student was compelled to show his first year attendance coupon before entering the room. He then passed through a double line of the "sluggers" of the class before reaching the seats. No rush occurred, however, and as far as the upper classmen were concerned, the meeting was enjoyed in peace. An attempt was made by some of the class to introduce electioneering tactics, and a printed ticket was got out. This attempt, however, resulted only in signal failure. Mr. Ripley was chosen chairman, and it was then decided to elect a temporary president, secretary, and committee of five to draw up a constitution and report in two weeks, when the permanent officers would be elected. This would give the class a longer time to get acquainted with each other. The temporary officers are: President, W. Z. Ripley; Secretary, W. B. Poland; Committee of Five, Stearns, Johnson, Ellis, McDonald, and Brown. The meeting was then adjourned. An amusing feature of the meeting was, that as each candidate was nominated, he was requested to stand up and show himself to the class.

The K<sub>2</sub>S met at Young's last Friday evening, President Kendall in the chair. After a paper on The "Relative Merits of the Bichromate and Permanganate Processes" by Mr. Greeley, supper was served, and the meeting adjourned.

## THE COLLEGE WORLD.

HARVARD.—The Freshman class numbers 268, with 13 more in the Annex. The University supports 53 student organizations.—Harvard and Yale were the only American colleges invited to participate in the 500th anniversary festivities of the University of Heidelberg, on the 3d, 4th, and 5th of last August.—Finney, '84, Harvard's end rushman, will play with the team this fall.—Harvard's property tax last year was \$18,000.—The first voluntary chapel brought out 300 men. In track athletics of the past season Harvard has won two first and three second, Yale four first and three second, while the University of Pennsylvania has three first prizes.—James Russell Lowell will deliver the oration at Harvard's anniversary.—Willard, '87, has been elected captain of the Harvard nine, and Keyes, '87, captain of the crew. Brooks, '87, will captain the foot-ball team.

YALE.—Ex-President Porter does not believe in the elective system.—277 men in the Freshmen class.—Yale was recently somewhat excited over a slight fire in the medical hall. Small damage.—The Yale-Wesleyan foot-ball game, October 6th, resulted in a score of 75 to nothing in favor of the former.—Yale's new President seems to afford much satisfaction.—The annual fall tennis tournament is now in progress at Yale.

Two games per week will be played by the eleven until November 2d.—Peters will not play with the team this year.

PRINCETON.—One hundred and fifty men in the incoming class.—At Princeton, prizes to the amount of \$50 are offered as an inducement in gymnastics.—Princeton wishes the intercollegiate tennis tournament to be played there this year.—Princeton has held the pole-vault record for the last five years. June 24th, S. D. Godshall, of Lafayette, broke it, jumping 10 ft.  $7\frac{3}{4}$  inches.

The foot-ball association has imported, from England, a dozen Rugby balls.

CORNELL.—There are twenty-two young women in the entrance class at Cornell.—President Adams, just returned from Europe, thinks a general European war imminent.—The Cornell *Review* is no longer published.—327 freshmen at Cornell.—A satin banner, suspended by ribbons of carnelian and white, bearing the names of the nine together with the words "Cornell's record for the season—won every game," is a testimonial of the work done by the nine last season.—*Ex.*

The annual Exeter-Andover foot-ball match will take place at Andover, on the 13th of November.

WELLESLEY has 562 students—166 being in the freshman class.

COLUMBIA has decided in favor of co-education.

There is a young ladies' athletic association connected with Michigan University.

VERMONT UNIVERSITY has a student who is now eighty-five years old.

CHICAGO UNIVERSITY is now a thing of the past.

UNIVERSITY OF VIRGINIA.—The students, after having finished their examination papers, indorse them with, "I have neither given nor received assistance," and then the name is signed. No "spotter" is present at the examination.

DARTMOUTH was not allowed to enter the Northern Intercollegiate Foot-ball League.—Brown and Dartmouth have each 90 in the incoming class, while Amherst has only 80,—the smallest class in three years.

THE University of Jena has received a bequest of \$75,000, to be applied to zoölogical research upon Darwin's theory of evolution.

It is stated that every morning the old president of William and Mary College, in Virginia, rings the college bells, and though no one responds, the College is open, and still retains its charter.

THE entering class at Tuft's has sixteen men in the classical department, nine engineers, and ten in the divinity school.

RECORD of intercollegiate prizes since the organization of the Intercollegiate Athletic Association in July, 1876:—

Colleges.	1 <sup>st</sup> Prizes.	2 <sup>d</sup> Prizes.	Total.
1. Columbia,	41	37	78
2. Harvard,	40	39	78
3. Princeton,	26	22	48
4. Univ. of Pennsylvania,	20	14	34
5. Yale,	19	12	31
6. *Dartmouth,	4	5	9
7. Lehigh,	3	4	7
8. Lafayette,	3	2	5
9. College City, of N. Y.,	2	7	9
10. Williams,	2	1	3
10. *Wesleyan,	2	1	3
12. Stevens,	2	..	2
13. University of Michigan,	1	..	1
14. *Brown,	..	3	3
15. *Bowdoin,	..	1	1
15. Hobart,	..	1	1
15. Amherst,	..	1	1
18. Cornell,	..	..	..
18. Rutgers,	..	..	..
18. St. John's,	..	..	..
18. Trinity,	..	..	..
18. Union,	..	..	..
18. University of Vermont,	..	..	..
	165	150	315

\* No longer a member of the Association.

In the Intercollegiate Tennis Tournament at Yale, Brinley of Trinity won first place in the singles, defeating P. S. Sears of Harvard in the final round. Score, 6-0, 6-4, 6-3.

The final round of the doubles was very closely contested by Brinley and Paddock of Trinity, and Thacher and Knapp of Yale. The score of this round was 9-7, 5-7, 7-5, and 6-4, in favor of the Trinity men. This entire round abounded in most brilliant plays.



### Cards.

[ONE PAIR.]

They sat and watched the rollers break  
On the shining sand of the sloping beach,  
While he held her unresisting hand:  
A couple of hearts was the hand of each.

[ACE HIGH.]

"Only one cloud to our love," he said,—  
"The patient wait for the by and by.  
I'm a struggling man in the world to-day,  
With prospects good, but a purse *ace high*.

[A FLUSH.]

"Be patient, love; the day will come"—  
"But I am an heiress, darling; hush!"  
She was gathered close by clasping arms:  
The game was his; he had drawn a flush!!

—Archon.

### Figuratively Speaking.

Astronomy is 1-derful,  
And interesting, 2;  
The earth 3-volves around the sun,  
Which makes a year 4-you.

The moon is dead, and can't re-5,  
By law of phy-6 great;  
It's 7 where the stars alive  
Do nightly scintil-8.

If watchful Providence be-9,  
With good intentions fraught,  
Did not keep up its grand design,  
We soon should come to o.

Astronomy is 1-derful,  
But it is 2 so 4  
1 man 2 grasp, and that is why  
I'd better say no more.

—Exchange.

I ask not, O my God, for worldly fame,  
For love, for fortune, for the thousand things  
My neighbors' restless prayers forever claim,  
Vexing thine ear with vain importunings.  
All these may pass, nor will they pass lamented—  
Give me the moon, and I will rest contented.

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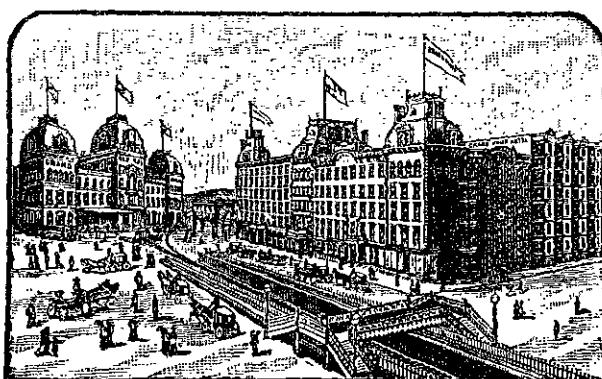
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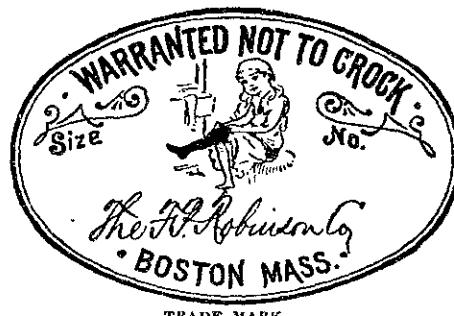
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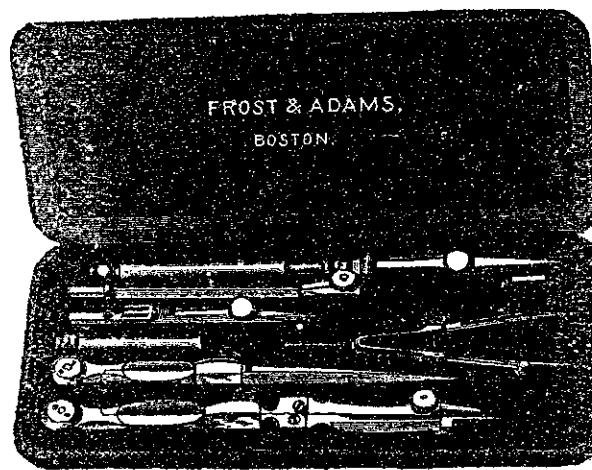
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